REMARKS

Applicant thanks the Examiner for consideration given this application. Claims 1-3, 5, 8-15, 18 and 20-35 are presently pending. Claims 1 and 11 are independent. Claims 1, 3, 5, 8-11, 13-15, 18, 20, 22-23, 28-31 and 34-35 have been amended and claims 4, 6, 7, 16, 17 and 19 have been canceled.

Applicant respectfully requests reconsideration of the rejected claims in light of the amendment and remarks presented herein, and earnestly seek timely allowance of all pending claims.

Rejection Under 35 U.S.C. § 103

Claims 1-7, 11-12, 16-20, 22, 26-28 and 32-35 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takeshita et al. ("Takeshita", U.S. Patent 7,084,907) in view of Kehtarnavaz et al. ("Kehtarnavaz", U.S. Patent 7,184,080). Claims 8-9 and 14-15 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takeshita in view of Kehtarnavaz and further in view of Ishii et al. ("Ishii", U.S. Patent 7,009,640). Claims 10 and 21 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takeshita in view of Kehtarnavaz and further in view of Hubina et al. ("Hubina", U.S. Patent 6,876,384). Claims 23 and 29 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takeshita in view of Kehtarnavaz and further in view of Higuchi. ("Higuchi", U.S. Patent 7,151,563). Claims 24 and 30 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takeshita in view of Kehtarnavaz and further in view of Takemoto ("Takemoto", U.S. Patent 7,081,918). Claims 25 and 31 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takeshita in view of Kehtarnavaz and Higuchi and further in view of Takemoto.

These rejections are respectfully traversed.

Amended independent claim 1 recites, *inter alia*, "determining distances between points which represent the color information for said plurality of division areas in the color space which is represented by R/G and B/G; creating new groups for said (R/G, B/G) points using said

distances between said points; counting a number of the points within each of the groups and obtaining a plurality of specific groups from among the groups based on said number of the points so that the number of points in each of said specific groups is greater than or equal to a predetermined number; obtaining R/G gains and B/G gains for each of said plurality of specific groups, wherein the R/G gain and B/G gain for each specific group make color information representing said each specific group to be the neutral gray (N gray); calculating white balance correction values using the plurality of R/G gains and B/G gains for said plurality of specific groups; and adjusting the white balance of said RGB signals based on said white balance correction values."

Amended independent claim 11 recites, *inter alia*, "a grouping device for determining distances between points which represent the color information for said plurality of division areas in the color space which is represented by R/G and B/G, and creating new groups for said (R/G, B/G) points using said distances between said points; a counting device for counting number of the points within each of the groups; a calculating device for obtaining a plurality of specific groups from among the groups based on said number of the points so that the number of points in each of said specific groups is greater than or equal to a predetermined number, obtaining R/G gains and B/G gains for each of said plurality of specific groups, wherein the R/G gain and B/G gain for each specific group make color information representing said each specific group to be the neutral gray (N gray), and calculating white balance correction values using the plurality of R/G gains and B/G gains for said plurality of specific groups."

Takeshita and Kehtarnavaz do not discuss the above features recited in claims 1 and 11, as explained below.

Takeshita and Kehtarnavaz do not discuss "determining distances between points which represent the color information for said plurality of division areas in the color space which is represented by R/G and B/G; creating new groups for said (R/G, B/G) points using said distances between said points."

At col. 6 line 60-col. 7 line 25, Takeshita explains that in step S12, the CPU 35C calculates the ratio of the R-color data and the G-color data and the ratio of the B-color data and the G-color data in each of 160 pixels; and in step S13, the CPU 35C makes a decision as to

whether or not there are any data indicating an achromatic color among the 160 sets of chromaticity data (R-G)/G and (B-G)/G that have been calculated. FIG. 6 shows the achromatic color distribution on a chromaticity coordinate system. The chromaticity of an achromatic subject illuminated by sunlight with a color temperature of 3000K is indicated over an area 1 in FIG. 6. The chromaticities of an achromatic subject illuminated by sunlight with color temperatures of 4250K, 4520K, 5120K, 6130K and 6620K are respectively indicated over areas 2 to 6, etc. The CPU 35C judges that there are achromatic color data if any of the chromaticity data (R-G)/G and (B-G)/G are contained in one of the areas 1 to 12 in FIG. 6 and judges that there are no achromatic color data if none of the data are contained in the areas 1 to12.

In claim 1, distances are determined between points which represent the color information and new groups are created for the (R/G, B/G) points using the distances between the points.

Takeshita does not determine distances between points which represent the color information for the 160 pixels, as no distances between the image points (R-G)/G and (B-G)/G are calculated. Furthermore, groups are not created in Takeshita based on distances calculated between points. Takeshita determines achromatic areas for pixels by simply plotting (R-G)/G and (B-G)/G data and checking to see if plotted data is contained in one of the predetermined areas 1 to 12 in FIG. 6.

Takeshita is an image capturing device that includes a gain adjustment device that performs a gain adjustment by multiplying the image-capturing signal output by the image capturing element by the gain calculated by the gain calculating device (*See Abstract*). While Takeshita may contain many graphs within the figures, none represent the color space represented by R/G and B/G and no embodiment of Takeshita creates new groups for (R/G, B/G) points using distances between points (Figures 9-11).

Kehtarnavaz does not determine distances between points which represent the color information for a plurality of division areas, either. In Kehtarnavaz (col. 6 lines 23-45) the color space is divided into a number of sectors, with color points in each sector representing similar looking colors. Within each sector, a prototype color is compared to all the reference colors (under one of the set of illuminants) in that sector. This is done by computing the closeness in

hue of the prototype and the reference colors. Therefore, Kehtarnavaz does not determine distances between prototype colors themselves, and does not create groups based on distances calculated between prototype colors.

In conclusion, Kehtarnavaz does not determine distances between points which represent the color information for a plurality of division areas in the color space which is represented by R/G and B/G, and does not create new groups for (R/G, B/G) points using distances between said points.

Takeshita and Kehtarnavaz do not discuss "counting a number of the points within each of the groups and obtaining a plurality of specific groups from among the groups based on said number of the points so that the number of points in each of said specific groups is greater than or equal to a predetermined number; and obtaining R/G gains and B/G gains for each of said plurality of specific groups, wherein the R/G gain and B/G gain for each specific group make color information representing said each specific group to be the neutral gray (N gray)."

In steps S22 and S30, Takeshita uses only one pixel area, namely, the pixel area containing the largest number of sets of data, to calculate averages of R/G and B/G at these pixels. Therefore, in these cases, Takeshita does not obtain R/G gains and B/G gains for each of a plurality of pixel areas.

In steps S29, S21, S24, S25, Takeshita calculates averages of R/G and B/G at all pixels in areas with color temperatures close to 5000K. In step S29, for example, the CPU 35C calculates the averages of R/G and B/G by using all the data contained in, for instance, the areas 3 and 4. The data in the area 3 and the area 4 are utilized in this process to calculate the averages of R/G and B/G with data in areas corresponding to sunlight with color temperatures close to 5000 K (col. 10 lines 1-7). The processing in Takeshita is different from obtaining R/G gains and B/G gains for each of said plurality of specific groups, as recited in claim 1, because Takeshita does not obtain R/G gains and B/G gains for each pixel area. Takeshita groups together all data in areas with color temperatures close to 5000K, or all data in areas 3 and 4, and calculates the averages of R/G and B/G. Also, at col. 10 lines 20-25, Takeshita states that "the white balance adjustment is executed by multiplying all the values of the R signals and the

B signals in the entire area in which the image-capturing element 26 captures an image by the white balance adjustment R gain and the white balance adjustment B gain respectively regardless of in which of the 160 pixel areas the color signals that were utilized in the light source type estimate were detected by the color sensor 86." This is different from calculating white balance correction values using the plurality of R/G gains and B/G gains for said plurality of specific groups, as is recited in claim 1, because Takeshita does not determine a plurality of R/G gains and B/G gains for said plurality of specific groups, and does not calculate white balance correction values using such R/G gains and B/G gains.

Thus, while Takeshita discusses how the CPU 35C selects an area with the largest number of sets of chromaticity data among the area 1~6 representing the sunlight sources, this is completely dissimilar to the above-mentioned features of claim 1. The plurality of specific groups of points representing color information on the color space represented by R/G and B/G as claimed in claim 1 are not an equivalent to the chromaticity data of the sunlight sources as discussed in Takeshita in column 9. Thus, a specific group of from among the groups based on said number of the points is distinguishable from Takeshita as well.

Kehtarnavaz does not discuss "counting a number of the points within each of the groups and obtaining a plurality of specific groups from among the groups based on said number of the points so that the number of points in each of said specific groups is greater than or equal to a predetermined number." Firstly, Kehtarnavaz does not obtain a plurality of specific groups of (R/G, B/G) points. Secondly, Kehtarnavaz does not generate groups for which number of points in each group is greater than or equal to a predetermined number. Thirdly, col. 7 lines 1-21 in Kehtarnavaz do not teach calculating white balance correction values using a plurality of R/G gains and B/G gains for a plurality of specific groups for which the number of points in each specific group is greater than or equal to a predetermined number, as is recited in claim 1.

Therefore, Takeshita and Kehtarnavaz do not teach or suggest all the features of claims 1 and 11.

Hubina also does not teach calculating white balance correction values using the plurality of R/G gains and B/G gains for said plurality of specific groups for which the number of points in each specific group is greater than or equal to a predetermined number, as is recited

in claim 1. Col. 14 lines 21-67 in Hubina do not discuss any gains and formulas (10), (11) and (12) refer only to pixel intensity values. Furthermore, a condition on a number of points in a group to be greater than or equal to a predetermined number is not disclosed in Hubina.

Therefore, Hubina does not teach or suggest all the features of claims 1 and 11.

Applicant submits that the Examiner's reliance on Ishii, Hubina, Higuchi and Takemoto on pages 9, 12, 13, 14 and 15 of the Office Action as allegedly pertaining to incremental features of claims 8-10, 14-15, 21, 23-25, 29-31 fails to make up for the deficiencies of the asserted Takeshita and Kehtarnavaz references discussed above with respect to independent claims 1 and 11. Therefore, the asserted grounds of rejection fail to establish *prima facie* obviousness of any pending claim.

For all of the above reasons, taken alone or in combination, Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. § 103 (a) rejection of claims 1 and 11. Claims 2-3, 5, 8-10, 22-27 and 34 depend from claim 1 and are allowable at least by virtue of their dependency. Claims 12-15, 18, 20-21, 28-33 and 35 depend from claim 11 and are allowable at least by virtue of their dependency.

CONCLUSION

All matters having been addressed in view of the foregoing, Applicant respectfully requests entry of this Amendment, the Examiner's reconsideration of the application, and the immediate allowance of all pending claims.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Corina E. Tanasa, Registration No. 64,042, at telephone number (703) 208-4003, located in the Washington, DC area, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

Date: March 30, 2009

Respectfully submitted,

By _____

Michael R. Cammarata
Registration No.: 39,491
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant